

System for Transporting Application Settings, Files and Other Data From One Computer-based device to Another Computer-based device

~~La1 The present application claims the benefit of provisional patent application "System for Transporting Application Settings, Files and Other Data from One Computer to Another Computer", serial number 75/836,301, filed March 29, 2000.~~

The present invention relates to a method and system for transferring, via the HTTP protocol, application settings, files and other data from a first computer-based device (e.g., an older PC) including, but not limited to, wired PCs /workstations, etc., wireless electronic devices (e.g., laptops, palm-based systems, telephones, WAP devices, etc.), to a second computer-based device, such as a new replacement PC, so that the second computer-based device will have a substantially similar operating environment as the first computer-based device.

In the enterprise, industrial and residential marketplaces, computer-based devices and information applications have become standard. In addition to the continued growth of computer use, turnover of computer-based has increased as newer and better ones are produced. As a result, businesses and individual computer-based device users are frequently replacing their computer-based with the latest models. This trend will undoubtedly continue as the price of computer-based devices continues to decrease and the need for processing power increases.

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reconfiguring the new system to have the identical or similar operating environment as the one being replaced. Although a user may be interested in a new computer-based device's increased speed or storage capacity, the user typically wants the new computer-based device to have the same "feel" as the one being replaced.

Computer users typically arrange their personal or work computer to suit their preferences. For example on a PC, desktop settings, such as the background design on the monitor, e.g., the "wallpaper", desktop settings or automatic start-up commands are frequently customized. Over time, individuals will normally store certain software applications and data on their PCs. These applications are typically customized to suit the individual user's particular preferences. For instance, with regard to a word processing application, the user may specify a preferred default font, a custom page layout, customized spell-checking dictionaries, and easy access to frequently retrieved files.

More recently, users tend to personalize their computer-based devices so that certain Internet features are stored for later use. For example, users normally customize their computer-based devices to allow easy dial-up access to their preferred Internet service provider or to save their favorite World Wide Web ("WWW") sites, e-mail addresses, browser bookmarks, etc. At the present time, a user must endure both the time and effort to customize every new device that they purchase. No method exists to easily enable the user to selectively direct transference of the "look and feel" or content of existing devices to new or other devices which may differ in format, form factor, capacity, platform, operating system or function. It would be useful to carry the user's configuration from device to device without requiring the user to reconfigure each time (i.e., customizing hardware and software settings, reloading software and files, etc.).

When a user purchases a new replacement computer-based device, it can take many hours

to reconfigure the replacement so that the operating environment is similar to the environment of the original. Most software applications are customized according to each individual user's personal preferences. By simply reloading the original software program discs on the replacement computer-based device, the user will lose all of his or her personal preferences. Thus, the user must reconfigure all the applications so they are customized to his or her liking. Not only can this process be time consuming, but it can also be technically difficult for those users with moderate computer-based device experience. In addition, older software applications may be incompatible with the newer computer-based device's operating system, or may require upgrades, and this may further complicate the transfer process.

Normally, the transfer is conducted by one of a variety of tedious and time-consuming methods. A user may opt to copy all the files on the older computer-based device onto a disc or some other storage device and then reload the files on the new computer-based device. This method is extremely time consuming and may possibly be technically infeasible for some users. For instance, many application files are so large that they cannot be stored on a single standard floppy disc or other smaller storage device, thereby making this method unworkable.

Another method involves physically connecting the older and the new systems to one another through some type of compatible cable or networking. After the devices are connected, the user can directly transfer files from one computer-based device to another. This procedure requires the equipment necessary to connect the two computer-based devices to one another, and the steps necessary to make the appropriate transfer is typically beyond the knowledge of most conventional computer-based device users. Even if a user was sufficiently knowledgeable about facilitating such transfer, the present invention expedites the transfer of the desired information.

Each of the options discussed above are time consuming, technically demanding on the

user and fail to allow conversion between differing devices, differing software, hardware, platforms, environments, communications standards, etc. Most consumer users, especially residential users, do not have the resources or the know how to undertake the transfer of the appropriate files and settings from one computer-based device to another in a quick and efficient manner. In the enterprise or industrial environment, introducing new computer-based devices or moving/upgrading existing ones becomes a burden because of compatibility, loss of data, and time issues.

What is needed is a system and method which can provide an easy, fast and comprehensive transference of settings, software, and data, while considering modifications thereof based on compatibility, the selected receiving device and user selections. Whatever the precise merits, features and advantages of the prior art, it fails to achieve or fulfill the purposes of the present invention.

Summary of the Invention

Wherefore, it is an object of the present invention to overcome the above noted drawbacks associated with customizing a second computer-based device, e.g. a new replacement PC, to operate in substantially the same fashion as a first older PC to be replaced.

A further object of the invention is to facilitate a quick and easy method and system for transferring various application settings, files and other personal data from a first computer-based device to a secure temporary storage site and, thereafter, allow the temporarily stored files, settings and other data to be retrieved from the temporary storage site and downloaded onto a second computer-based device, e.g. a new replacement PC, so that the second device will have substantially the same operating environment and personalized feel as the first one.

A further object of the invention is to facilitate a quick and easy method and system for backing-up various application settings, files and other personal data for a computer-based device, storage to a secure temporary storage site and, thereafter, allow the temporarily stored files, settings and other data to be retrieved from the temporary storage site and downloaded back (restore function) to the computer-based device, so that it will continue to have substantially the same operating environment and personalized feel.

A further object of the present invention is to streamline the transportation of the desired application settings, files and other personal data from a first computer-based device to a second computer-based device, without requiring the user to install or use any cabling, other than a conventional connection to the Internet which, in most circumstances, already exists on the first computer-based.

A further object of the present invention is to streamline the transportation of the desired

Another object of the present invention is to provide a method and system which initially scans the original first computer-based device to determine the manufacturer, brand, type, version, model, etc., of any software, communications parameters, mouse, keyboard, monitor, printer and other peripherals installed on or electrically coupled to the first computer-based device.

Yet another object of the present invention is to provide a method and system in which the user of the method and system is readily able to select the desired applications settings, files and other data that are to be transferred from the original, first computer-based device to the temporary storage site and also facilitate selection of the files, settings and other personal data to be downloaded, from the temporary storage site onto a second computer-based device, e.g. a new replacement computer-based device.

Still another object of the present invention is to facilitate scanning of the second computer-based device, e.g. the new replacement computer-based device, prior to the downloading of any of application settings, files and other data to ensure that the second computer-based device has the necessary capabilities, e.g. hardware, software, etc., to allow downloading of the temporarily saved files, settings and other personal data on the second computer-based device.

Another object of the present invention is to utilize the HTTP protocol over the Internet, WWW, LANs or other communications networks to facilitate and streamline the process of

A still further object of the present invention is to facilitate a simple manner in which software applications, installed on the first computer-based device, can be scanned and checked against the currently available versions of each respective application contained on that computer-based device. This can be done in order to determine whether the user possesses the most current version of a particular software application. In the event that the user does not possess the most current version of a particular software application, the system and method will alert the user to that fact and provide the user with the option to make an on-line purchase of the appropriate upgrade of that particular software application for the second new computer-based device.

Yet another object of the present invention is to provide a system which allows computer-based devices, employing a variety of different operating systems, to interact with the website of the server system.

Yet another object of the present invention is to provide a system which allows computer-based devices, employing a variety of different communications standards, to interact with the website of the server system.

A further object of the present invention is to streamline the transportation of the desired application settings, files and other personal data in a consumer, enterprise or industrial environment, employing computer-based devices with a variety of different hardware and

A further object of the present invention is to provide a simple reconnection mechanism to an Internet Service Provider (ISP) and also provide a method and apparatus that allows a user to “undo” a download for one reason or another.

Still another object of the present invention is to provide a system which allows various offers to be presented and allows various advertisers to target specific users based upon the user operating environment information acquired and categorized by the present invention, during the scan of the computer-based devices, to ensure that extremely relevant offers and advertising materials are presented to the users of the scanned computer-based devices with respect to privacy.

The present invention relates to a method for transferring information from a first computer-based device to a web site, for temporary storage and for later transfer of the stored information from the web site to a second computer-based device, the method comprising the steps of: establishing a communication link between a first computer-based device and a web site having a storage capability; scanning the first computer-based device, via the web site, to determine the information contained on the first computer-based device; allowing a user to select which of the scanned information, determined by the web site, is to be uploaded from the first computer-based device onto the web site for temporary storage; and transferring the information, contained on the first computer-based device and selected by the user, onto the web site for temporary storage.

The present invention relates to a system for transferring information from a first

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These and other objects and advantages of the present invention will become more apparent after consideration of the following description and the accompanying drawings.

Brief Description of the Drawings

The invention will now be described, by way of example, with reference to the accompanying drawings in which:

Fig. 1 is a diagrammatic illustration of the architecture of the present invention in an Internet embodiment.

Fig. 2 is a diagrammatic illustration of the various components comprising the website server according to the present invention;

Figures 3a and 3b, collectively illustrate an overview of the upload steps of the present invention.

Figures 4a and 4b, collectively illustrate an overview of the download steps of the present invention.

Fig. 5 is a diagrammatic illustration of an e-commerce embodiment, e.g., for a user accepting an advertisement or order.

Fig. 6 is a diagrammatic flow diagram illustrating a routine transferring application settings, files, and other data from a first computer-based device onto the web site for temporary storage, conversion and downloading to a differing computer-based device;

Fig. 7 is a diagrammatic flow diagram illustrating the routine for retrieving the temporarily stored application settings, files, and other data from the web site onto a new computer-based device;

Fig. 8 is a diagrammatic illustration including the client ATL DLL according to the present invention;

Fig. 9 is a diagrammatic illustration of a partial CAD implementation.

Fig. 10 is a diagrammatic illustration of the architecture of the present invention in an

enterprise or industrial embodiment.

Fig. 11 is a diagrammatic flow diagram illustrating a back-up routine transferring application settings, files, and other data from a first computer-based device onto the web site for temporary storage and returning thereof.

Fig. 12 is a diagrammatic flow diagram illustrating transferring application settings, files, and other data from a first computer-based device onto the web site for temporary storage and returning thereof to one or more second computer-based devices of a differing format.

Fig. 13 is a diagrammatic flow diagram illustrating a software version upgrade routine performed during transferring application settings, files, and other data from a first computer-based device to a second computer-based device.

Figures 14-28 collectively illustrate, through screenshots, a working example of the present invention.

some other desired local area network (LAN - preferred for enterprise environment), wide area network (WAN), virtual private network (VPN), Intranet, wireless web, or equivalents, generally designated as **104**. The PC **100** is also electrically coupled to a display device, e.g. a monitor, by conventional cabling, an input device, e.g. a keyboard, by conventional cabling, and to a mouse.

As with typical computer-based devices, the PC **100** also has a plurality of internal components (not separately designated or shown) such as a central processing unit (CPU), some ROM, some RAM, a hard disc drive, and internal computer software. The PC **100**, is typically loaded with conventional software, some of which was initially installed on the computer-based device at the time of purchase, while a remainder of the computer software may have been periodically installed by the user in a conventional manner. It is to be appreciated that a variety of other PCs **106**, having similar components, may also be simultaneously connected to the website of the server system **108**. For the sake of simplicity, an explanation relating to the transfer of information from only one PC **100** to a second PC **106** will be provided. Additional applicable embodiments include, but are not limited to, one-to-plural, plural-to-one and one-to-itself (e.g., using the present invention to backup or restore only the first PC).

As can be seen in Fig. 2, a block diagram of the server system, showing the components **200** that facilitate allowing a user to transfer application settings, files and other data from a first computer-based device onto the web site for later retrieval by another computer-based device, is shown. The website of the server system **200** comprises conventional processors **202** which are electrically coupled, in a conventional manner, to a plurality of databases, such as a content database **204**, a user database **206**, a binary database **208**, and an e-commerce database **210**.

Processors **202** comprise and operate the programmed routines that run on the first computer-based device **100** and the second computer-based device **106** to scan those computer-

based devices and detect the software applications, application settings, files and hardware data, and any other information necessary for a successful transfer of desired information. After scanning both the first and second computer-based devices involved in the transfer of information (as discussed below in further detail), the SMOD then compare and correlate the relevant data from the first computer-based device **100** with that of the second computer-based device **106** to determine what application settings, files and other data are available for transfer. The processors **202** facilitate displaying of this information to the user and ultimately facilitate the transfer of the application settings, files and other data that the user selects to be transferred from the first computer-based device **100** into storage and later onto the second computer-based device **106**, as discussed below.

Server system **200** also comprises one or more individual databases **204-210** to enable the storage and retrieval of user data, web site content data, internal use data, data regarding current software application versions, and other miscellaneous data. The processors **202** are able to interact with each database to retrieve data necessary to carry out the desired routines. The processors **202** are also able to interact with each of the individual databases in order to store data within those databases.

This server system **200** contains a content database **204** for the purpose of storing any data (WAF) that is displayed to the user, e.g., GUIs, web site pages, advertisements, offers, etc., as well as any data related to applications and application settings obtained from the manufacturers of the respective software applications. This database will be updated frequently to continually contain the most current data regarding software applications and their application settings.

Server system **200** also contains a user database **206** for the purpose of storing data

A overview of the process of uploading and temporarily storing settings, files and other data on the web site of the server system **200**, for later transfer to a new replacement second computer-based device **106**, will now be described with reference to Figs. 1 and 3. When a user of the first computer-based device **100** desires to replace the first computer-based device **100** with a second computer-based device **106**, for example, the user accesses the web site of the appropriate server system **108**, via the communication system (e.g., modem - not shown) and the conventional connection **102** of the first computer-based device **100**, to transfer various software applications, files, settings and other data of the first computer-based device onto the web site of

the appropriate server system **110** for later transfer to the second computer-based device, e.g. a replacement computer-based device **106**.

The user of the computer-based device **100** accesses the website of the server system **200** by initializing the modem and communicating with the web site of the server system via the communication system, in a conventional fashion, at step **300** (Fig. 3). As such connection is conventional and well known in the art, and forms no part per se of the present invention, a detailed description concerning the same is not provided.

Once a communication link is established, at step **300**, between the first computer-based device and the web site of the server system, the user sets up a personal account to be maintained by the server system, at step **304**, to which all of the files, settings and other data to be uploaded from the first computer-based device are to be temporarily stored. This personal account is assigned a suitable password, in a conventional manner at step **306**, by the user prior to uploading all of the desired files, settings and other data from the first computer-based device.

Then, the user of the first computer-based device can download software (client ATL DLL - CAD) from the server system, at step **302**, so that the user can then interact with the website of the server system to select the desired setting, files, information and other data to be uploaded from the first computer-based device **100** for temporary storage and later retrieval as desired.

After the user downloads the necessary software (client ATL DLL- CAD) from the web site of the server system to the first computer-based device, via the communication system, the user can then begin interacting with the web site of the server system, and the user requests the server system, via the server system's web site, to initially read or scan all of the software applications and other data stored on the first computer-based device, at step **308**. During this

Once the user's personal account has been set up, the user requests the server system, via the server system's web site, to initially read or scan all of the software applications and other data stored on the first computer-based device, at step **308**. During this initial scanning process, the manufacturer, the brand, the version, the type, etc., are determined for each installed software application(s), mouse, keyboard, monitor, printer and other peripherals and the personal settings designated for each software application as well as other information concerning the operating environment of the first computer-based device are ascertained. Upon completion of the initial scanning step, this scanned information is temporarily stored in the user database **206** of the web site of the server system, at step **310**.

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the system proceeds to step 500 (Fig. 5). Otherwise, the user can decline the advertisement(s) and/or offer(s) by entering or clicking on a “No Thanks”, or other related area or button to decline the same.

In the event that the user decides to accept an advertisement or offer, the system will proceed to step 510 where all the necessary information from the user is obtained. Specifically, depending upon the advertisement or offer accepted by the user, the following information may be obtained from the user, at step 510, e.g. credit card information to pay for ordered computer-based device software or updated version of the software, a mailing address or e-mail address to which the requested information, promotional material, further advertisements, survey, etc., may be send or directed, etc. It is to be appreciated that the type or kind of information to be obtained from the user can vary from application to application and is dependent specifically on the product, item, good and/or service being promoted or offered to or accepted by the user. Next, at step 520, the system makes the necessary arrangements to either send or mail the ordered or requested product, item, good and/or service to the user or to forward the same directly to the user, via the Internet. Finally, at step 530, this system returns to step 318.

Following completion of this initial scanning procedure, the web site of the server system then displays a GUI to the user, at step 318 via the web site of the server system, said GUI includes a prompt for the user to select the desired application setting(s), file(s), and other data which are to be uploaded from the first computer-based device, via the communication system, and temporarily stored in the personal account of the user set up at the web site of the server system. The server system will also display to the user the estimated upload time for uploading all of the selected settings, files and other data onto the server system. Preferably the displayed estimated time value will increase or decrease, as appropriate, as the application setting(s),

file(s), and other data which are to be uploaded are selected or canceled (once selected) by the user. After the user has selected all of the desired settings, files and other data to be uploaded, the web site of the server system will then prompt, at step **320**, whether or not to begin the uploading process of the select application setting(s), file(s), and other data from the first computer-based device to the web site of the server system.

In the event that the user initiates the uploading process, at step **322**, the web site of the server system then interacts with the first computer-based device, via the communication system, to coordinate the sequential transmission of all of the selected settings, files, and other data, which are to be uploaded from the first computer-based device and temporarily stored in the personal account of the user at the server system. Once this upload process is completed, the web site of the server system then confirms whether or not, at step **324**, a successful transfer of all of the selected application setting(s), file(s), and other data from the first computer-based device to the web site of the server system has occurred. If the web site of the server system determines that such transfer was successfully completed, the web site of the server system sends a message, at step **326**, confirming the same to the user. If all of the selected application setting(s), file(s), and other data to be transferred from the first computer-based device to the web site of the server system were successfully received by the web site of the server system, the user can then exit from the web site of the server system, at step **328**, in a conventional manner. Thereafter, these uploaded files, settings, and other data will remain temporarily stored in the personal account of the user at the web site of the server system for a predetermined period of time, e.g. a year or so, or until the user retrieves all of the temporarily stored files, settings and other data from the personal account of the user at the web site of the server system, e.g. once the user has purchased a new computer-based device and downloads all of the temporarily stored

settings, files, and other data to the new computer-based device **106**.

If the web site of the server system determines that some or all of the selected application setting(s), file(s), and other data, transferred from the first computer-based device, were not successfully received by the web site of the server system, then the web site of the server system sends an error message, at step **316**, indicating this and the system returns to step **318** to attempt another transfer of the selected application setting(s), file(s), and other data, transferred from the first computer-based device to the web site of the server system, as described above.

The process of downloading the temporarily stored settings, files, and other data onto a second computer-based device **106**, e.g. a newer replacement computer-based device, will now be described initially with reference to Figures 1, 4a and 4b. The second computer-based device, generally designated as **106**, has an internal or external modem electronically coupled by a conventional connection to the communication system, e.g. the Internet, some other desired local area network, etc., generally designated as **104**. The second computer-based device **106** is also electrically coupled to a display device, e.g. a monitor, by conventional cabling, an input device, e.g. a keyboard, by conventional cabling, and to a mouse by conventional cabling. As with typical computer-based devices, the computer-based device **106** also has a plurality of internal components (not separately designated or shown) such as a central processing unit (CPU), some ROM, some RAM, a hard disc drive, and internal computer-based device software.

The computer-based device, is typically loaded with conventional software, some of which was initially installed on the computer-based device at the time of purchase while additional computer-based device software may have been periodically installed on the computer-based device by the user in a conventional manner. It is to be appreciated that a variety of other second computer-based devices, having similar components, may also be simultaneously connected to

the web site of the server system.

When the user desires to transfer some or all of the temporarily stored files, settings and other data to a second computer-based device, the user contacts the web site of the server system via the second computer-based device, at step **400** (Fig. 4a). The second computer-based device **106** contacts the web site of the server system via the second computer-based device's modem and the Internet in a conventional fashion. Once a communication link is established, at step **401**, between the second computer-based device **106** and the web site of the server system, the user accesses his or her personal account during step **404**, by entering the previously assigned account number and selected password in a conventional manner. Assuming that the personal account is successfully accessed by the user at step **406**, i.e. the correct account number and password information are provided, the user is then provided access to the previously uploaded settings, files and other data of the user temporarily stored in the personal account at the server system. Otherwise, the user is not provided access to the previously uploaded settings, files and other data.

Then, the user of the second computer-based device downloads computer-based device software (client ATL DLL - CAD) from the server system, at step **402**, enabling the user to interact via the web site of the server system to select and download the desired setting, files, and other data which were previously stored for later retrieval.

Assuming that the personal account is successfully accessed, the user directs the server system to read or scan the internal components of the second computer-based device **106**, at step **408**, to determine essential hardware and storage information, the manufacturer, the brand, the version, etc. of each installed software application, mouse, keyboard, monitor, printer, and other peripherals as well as other information concerning the operating environment of the second

computer-based device. The information read during the scanning step is temporarily stored, at step 410, at the server system. The website of the server system then performs routines, at step 412, to compare and correlate the scanned and stored information of the first computer-based device of that user to the scanned information of the second computer-based device of that user. During this process, the website of the server system correlates the software applications, application settings and other operating information environment of the first computer-based device 100 to the second computer-based device 106. The server system will determine whether the particular application settings, stored on the web site of the server system, are from the most recent version(s) of that particular software or whether there are other currently available versions of that particular software which are not present on the second computer-based device. In the event that the web site of the server system detects that a more recent version(s) of a particular software application is/are available, the web site of the server system will convey that information to the user. Furthermore, the web site of the server system will provide to the user the option, at step 420, of purchasing the most recent upgrade of the particular software application, via an on-line purchase over the Internet. If the purchase of the upgrade is accepted, the web site of the server system will either download or ship the software directly to the user to install on the second computer-based device and bill the user for the same.

After this correlation step is complete, the web site of the server system identifies and displays to the user, at step 414 via the web site of the server system, the application settings and other operating environment information that are possible to be transferred from the first computer-based device 100 to the second computer-based device 106 and also displays to the user any application settings and other operating environment information that are not possible to be transferred from the first computer-based device to the second computer-based device. The

website of the server system, will then prompt the user, at step **416**, to select all or a certain portion of the stored files, settings and other data from the first computer-based device which are to be downloaded from the personal account of the user at the web site of the server system to the second computer-based device, via the communication system. As the user selects all of the desired files, settings and other data to be downloaded, the web site of the server system will then display to the user the estimated time it will take for downloading all of the selected files, settings and other data from the personal account of the user at the web site of the server system to the second computer-based device.

As with the upload, the web site of the server system can next determine which advertisement(s) and/or offer(s), stored in the web site of the server system, are applicable and are to be presented to the user of the second computer-based device. Once such advertisement(s) and/or offer(s) information is determined, this information will be displayed to the user, at step **418**. In the event that the user would like to purchase, accept, agree to, enroll, etc., any of the advertisement(s) and/or offer(s) presented to the user, the user can click on a desired location of the display screen displaying the advertisement(s) and/or offer(s) information which will allow the user to purchase, accept, agree to, enroll, etc. such advertisement(s) or offer(s), and the system proceeds to step **500** (Fig. 5). Otherwise, the user can decline the advertisement(s) and/or offer(s) by entering or clicking on a "No Thanks", or other related area or button to decline the same and proceed to step **422**.

In the event that the user decides to accept an advertisement or offer, the system will proceed to step **510** where all the necessary information from the user is obtained. Specifically, depending upon the advertisement or offer accepted by the user, the following information may be obtained from the user, at step **510**, e.g. credit card information to pay for ordered computer-

based device software or updated version of the software, a mailing address or e-mail address to which the requested information, promotional material, further advertisements, survey, etc., may be sent or directed, etc. It is to be appreciated that the type or kind of information to be obtained from the user can vary from application to application and depend specifically on the product, item, good and/or service being promoted or offered to or accepted by the user. Next, at step 520, the system makes the necessary arrangements to either send or mail the ordered or requested product, item, good and/or service to the user or to forward the same directly to the user, via the Internet. Finally, at step 530, this system returns to step 422.

After the user has selected all of the desired settings, files and other data to be downloaded, the web site of the server system will then prompt, at step 422, whether or not to begin the downloading process of the select application setting(s), file(s), and other data from the personal account at the web site of the server system to the second computer-based device.

In the event that the user initiates the downloading process, the web site of the server system then interacts with the second computer-based device 106, via the communication system 104, to coordinate the sequential transmission of all of the temporarily stored and selected settings, files, and other data, at step 424, which are to be downloaded from the personal account of the user at the server system to the second computer-based device. Once this download process is completed, the web site of the server system then confirms, at step 426, whether or not a successful transfer of all of the selected application setting(s), file(s), and other data from the personal account of the user at the server system to the second computer-based device has occurred. If the web site of the server system determines that such transfer was successfully completed, the web site of the server system sends a message, at step 430, confirming this to the user. If all of the selected application setting(s), file(s), and other data to

If the web site of the server system determines that some or all of the selected application setting(s), file(s), and other data, transferred from the web site of the server system were not successfully received by the second computer-based device, then the web site of the server system sends an error message, at step **428**, indicating this and the system returns to step **422** to attempt another transfer of the selected application setting(s), file(s), and other data, transferred from the personal account to the second computer-based device, as described above.

A user will first interact with the system by hitting the homepage of the website controlled by web server **108**. This website is a traditional web server that simply hosts normal company pages. From the home page on this website, the user is able to hit a link **102** to begin using the system. Referring to figure 6, at this point the user's web browser accesses a gateway page on the Web Application Server **108** that allows the system to detect if the user's computer

100 is capable of interfacing with the core processing of the present invention **602**. If the user fails to meet the criteria **604**(examples would be- JavaScript turned off, browser version not supported, OS not supported, etc), then they get a response page that tells them what they should do to become compatible. If they are compatible, then they get a response page which causes a client ATL DLL, hereafter CAD, to automatically be downloaded **606** and installed on their computer using the Internet Download and Microsoft® authenticode features of Internet Explorer 4/5®. The user will then interact with a graphical user interface (GUI) that is provided by a sequence of webpages **608**. As the user chooses different actions, this is typically executing client-side JavaScript routines **610**. The JavaScript routines are able to call automation methods on the CAD. As an example to facilitate the illustration of the system, consider that the user has clicked a button in a web page that enables loading of their settings into the website. Upon clicking the "load" button, a JavaScript routine will invoke a "LoadSettings" method on the CAD. The CAD starts by making a HTTP call **612** to a Web Application Server to ask it to provide instructions on how to collect the settings that the user has chosen. The HTTP call causes the Web Application Server **108** to run an Active Server Page (ASP) that uses an Active Data Object (ADO) to run a query on a database located at the Database Server **110**. The Database Server returns a result set that contains the information about how to collect each setting **614** (For example, a record in the result set might say that the Outlook- 2000® personal address book is identified by their registry key HKCU\Software\Microsoft\Outlook\PAB). The Active Server Page receives the entire result set from the Database Server **110** in the Active Data Object. The Active Server Page steps through each record in the ADO and converts it into a data stream that uses XML tags to delineate the fields in the records. This XML format of data with the website specific tags is called a directive file. The directive file is returned to the CAD **616** as

a response from the HTTP call. The CAD uses its XML Parser to decode the instructions **618** from the website. It then executes the instructions **620** (For example, it would fetch the value in HKCU\Software\Microsoft\Outlook \PAB). The CAD accumulates the settings data into a local directive file **622** as it runs each instruction. When done, the CAD makes a HTTP POST call to upload the directive file **624** to the Binary Data Server **112**. The CAD then makes a HTTP call to tell the server **108** the settings have been uploaded. Referring to figure 7 at this point, the user would likely interact with some additional web pages and eventually be told to visit the website from their new computer-based device. On the new device **700**, after passing through the same general auto install process just described above (steps **702-710**), they would get to the point where they could click an "UnLoad" button **712**. This would trigger the JavaScript, which invokes an "UnLoad Settings " method on the CAD **714** (now located on the new computer-based device). The client would make a HTTP call **716** to request where it should find the directive file that holds the user's settings. It would then make an HTTP POST call to retrieve the appropriate corresponding directive file to the new computer **718**. Once downloaded, it would decode the directive file and follow the instructions to install the user's settings **720**. In most cases, when done, the user will re-boot **726** and his/her settings will then take effect **722**. An option to undo the load is also given **724**.

The CAD is the module of the system that runs on the end user's old and new PC. Responsibilities here would include scanning of the registry, interaction with the user, and communication with a Web Application Server using "web calls." The client would also upload and download binary data files like bitmaps, Word docs, etc. from a Binary Data Server. Key components to the client are:

- Active Template Library (ATL) based C++ ActiveX control hosted in IE® browser

- 



- The Binary Data Server **112** receives and transmits binary data files to/from the client.

- Other than functionally being able to serve the present invention operations, this architecture is also intended to offer long-term viability through simple and straightforward ways to gain reliability and scalability in the system. Web Application Servers can be added as demand grows. Because no state is stored in the servers, they can be exact copies of each other.

Figure 9 and its corresponding description below will lay out a basic methodology for settings gathering **900**. Specific settings chosen should not limit the scope of the invention. Any settings, files, programs or data can be substituted therefore using the techniques outlined below.

- Choose an application which needs settings moved **902**.
- Install the application via Instmon (see the Instmon section below) as you may need this information later **904**.
- The first things that must be identified are the base keys in the registry for this application **905**.
 - Usually these are: HKEY_LOCAL_MACHINE\Software\<company name>\<app name> and HKEY_CURRENT_USER\Software\<company name>\<app name>
 - A combination of registry keys must be found which are unique for this version of the application so the CAD can detect if this particular version of the application is installed on the PC or not. To this end, here is the predominant way of detecting if a particular version of an application exists on a PC.
 - Check to see if a version key exists **906**; like:

Internet Settings\5.0</KeyExists>

- ```
<FileExistsAtValue>HKLM\SOFTWARE\Microsoft\Windows\CurrentVe
rsion\App Paths\IEXPLORE.EXE\</FileExistsAtValue>
```

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out what changed in the registry by comparing before and after copies of the registry.

- Instmon (see instmon section below) can be used to monitor the installation to find all the keys that the application creates or modifies during its installation.
  - If the setting can still not be found then it may not be in the registry.
  - Once the setting has been identified, it needs to be put in the Commands table
912. Once all commands have been added, the stored procedure CDS  
spBuildAllSnippets is run to generate the new snippets.

A PID (product ID) is an application/version pair. It is basically a version of an application for which the registry entries are consistent. An application is just what you would think; it is one software program like “Word®”, “Excel ®”, “Visio ®”, “WinZip ®”. A version is not necessarily the same as the version on the application; we only need to add a new version when the registry structure for this application changes. So if WinZip 7.0 through WinZip 7.0 SR-7 all save data to the registry the exact same way, then we only need to add one version and thus one PID to the database. But if for instance Visio 2000 Enterprise edition ® saves data to the registry in a different structure than does Visio 2000 Personal edition ®, then a version and thus a PID must be added for both of these.


Another note is that there may be helper apps that were conditionally installed with some applications, and these must also be added as their own PIDs. For instance, when you install Word 97 ® from Office97 ® you may also choose to install BookShelf97 ®. If we want to move

Word97 is installed does not mean they installed BookShelf97.

- **RegEdit** - RegEdit.exe is located in C:\Winnt. RegEdit is the primary method of looking at what is in the system registry. The main sub-trees you will care about are HKEY\_LOCAL\_MACHINE\Software and HKEY\_CURRENT\_USER\Software. You can navigate these trees through a normal tree control interface.

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- **Filemon** - Filemon is also available from [www.sysinternals.com](http://www.sysinternals.com). Filemon monitors all file systems activity. Filemon's interface is almost identical to Regmon, and like Regmon you will likely be overwhelmed with data. To limit the data, you should tell Filemon to only include the application you want to monitor. You can do this by going to Edit -> Filter/Highlight menu item and entering the name off the app to monitor into the Include box (like "winword\*"®) then click apply. Like regmon you can also select to only see writes by unchecking the "Log Reads" checkbox on this same dialog.
- **ART** - Advanced Registry Trace is available from <http://www.elcomsoft.com/art.html>, if not already installed on your PC. ART basically facilitates doing a registry diff. It allows you to take a snapshot before you do something to the registry and then after and then compare the two.
- **Instmon** - InstMon is part of the NT® Server Resource Kit. You will have to install the resource kit to get Instmon. To install a package with Instmon, you just have to give the Instmon program the location of the new package's setup executable. For instance, "C:\NTResKit\InstMon\Installer.exe Office2k D:\Setup.exe". Once the product is installed, there will be a .IML file that has all the information about the install in it (Office2k.IML, for the example above). You can then run ShowInst ("ShowInst Office2k" for the example above) to see the resulting changes from the install.
- **XML tag glossary** - As with any XML product, a defined set (glossary) of relevant tags



### Terminology:

- Note: Items in *italics* indicate potential WAF method calls that are invoked for a given item. The parameters are ASP variables that have been populated from the Request object.

- The user enters the website and is directed to the Login page.
- The user enters their username, password, confirm their password, and email,
- The system passes the information entered by the user on to the Decision page and sets the Action Status to "New Login".
- Because the user is not logged in yet, they are assigned a SessionID of -1.
- The system checks to see if it can find a SessionID using the username and password that

- 

2) The login process for an existing user (one who has an account, but no active SessionID) is as follows:

- The user enters the website and is directed to the Login page.
- The user enters their username and password.
- The system passes the information entered by the user on to the Decision page and sets the Action Status to "Login".
- Because the user is not logged in yet, they are assigned a SessionID of -1.
- The system checks to see if it can find a SessionID using the username and password that the user typed in. *GetUserInformation(m\_Username, m\_Password)*.
- The user might have an old SessionID in the system, or if they finished their last session and logged off, there will be no SessionID.
- The system checks to see if the current SessionID is valid. It will not be valid, because it is either empty, expired, or came from another IP Address.  
*ValidateSession(m\_SessionID)*
- Because the SessionID is invalid, and the Action Status is "Login", the system tries to log the user in. *Login(m\_Username, m\_Password)*
- When the login occurs, the system creates a new unique SessionID. It also determines the user's IP Address and associates it with the newly created SessionID. The SessionID is then returned to the user.
- The SessionID is passed to every subsequent page thereafter, which the system uses to authenticate the user.
- If the user is inactive for too long of a period of time, their SessionID expires

- (The current timeout is set to 1 hour). The next time they try to perform an action, they will be informed that their session has timed out and must login again. If the user reaches the PostLoad or PostUnload page, they are automatically logged off of the website, thus destroying their SessionID.
- If the user wishes to, they can log off of the website at any time by clicking the Logoff button. This returns them to the Login page.

### 3) When a user refreshes the Decision page:

- The system sets the SessionID to -1.
- The system checks to see if it can find a SessionID using the username and password that the user typed in on the Login page. This information is available only on the Decision page, because it exists in the Form data. *GetUserInformation(m\_Username, m\_Password)*
- Since the user had already loaded the Decision page, there should be an existing SessionID from the current IP Address.
- The system checks to see if the SessionID is valid. It will not be valid if the SessionID has expired, otherwise it should be valid. *ValidateSession(m\_SessionID)*
- If the SessionID is expired, the user is redirected back to the Login page. They then follow the login process for an existing user (Section 2).

### 4) When a user refreshes any page, except for the Decision page:

- The SessionID on the current page should have been passed from the previous page.

- The system checks to see if the SessionID is valid. It will not be valid if the SessionID has expired, otherwise it should be valid. *ValidateSession(m\_SessionID)*
- If the SessionID is expired, the user is redirected back to the Login page. They then follow the login process for an existing user (Section 2).

5) When a user points 2 browsers to the website from the same machine:

- The website does not distinguish between the 2 instances of the browser since they are both coming from the same IP Address.
- Both browsers can use the same SessionID.

6) When a user closes their browser without logging off and then returns to the website from the same computer-based device while their SessionID is still valid:

- The first page that gets validated is the Decision page.
- The website treats this case the same as if the user hits refresh on the Decision page (Section 3)

7) When a user closes their browser without logging off and then returns to the website from a different computer-based device while their SessionID is still valid:

- The first page that gets validated is the Decision page.
- This case is covered in the login process for an existing user (Section 2).

8) When a user uses the Forward/Back buttons to navigate the website:



- Dishonest users - The following describe basic methods to prevent various malicious or improper attempts at accesses to the user info stored within the system (e.g., the binary database). These methods are not to be considered all encompassing, but rather illustrative of possible scenarios:

- All the methods on the CAD that transfer files take a SessionID as a parameter.
- If the CAD is not invoked with a valid SessionID that maps to the current IP Address, the method will fail.

- All the methods on the servers that transfer files take a SessionID as a parameter.
- If the SMOD is not invoked with a valid SessionID that maps to the current IP Address, the method will fail.

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- The only login/session management item passed from page to page in the website system is the SessionID.
- If a user leaves their computer-based device and another user does a "View Source", the only login/session management item that is revealed is their current SessionID.

4) A user could try to access the BDS directly to retrieve settings they don't own:

- All user data files stored on the server are given unique names that have nothing to do with their contents. It would be difficult (but not impossible) to guess a valid IMP filename.
- The BeginTransfer method of the BDS takes a SessionID as a parameter. This method is the main point of entry to the BDS data files.
- The BDS directory is protected by a Username/Password that must be used to invoke any BDS methods. Only the CAD and SMOD objects should know the Username/Password, but it is just another level of security.

Figure 10 illustrates an enterprise embodiment of the present invention. One major concern businesses have is security. In the enterprise embodiment, the storage of the settings, data, files, etc. (van) 1006, is moved within electronic boundaries controlled by the business. In this figure, the basic elements of the system remain the same, however the computer-based

devices are connected over an enterprise internal LAN, WAN, Intranet or virtual network **1002**.

The HTTP protocol is implemented over the selected network. The Web Application Server is replaced by a company managed Network Application Server **1004**. The method of the invention remains essentially the same, modified only by replacing web-based elements with business managed networking elements.

A remote workstation for upgrading, modifying, and/or adding software parameters (e.g., new settings, software versions, etc.) over the Internet **1009**, can exist or optionally be moved within the enterprise environment (physically or electronically, i.e., laptop).

Figure 11 illustrates a single computer-based user device using the present invention. In this embodiment, the user's PC needs the present invention system and method for the purposes of backing-up and restoring system settings, files and data. A van is created and stored in the Binary Data Server **1104**. When the user needs to restore stored information, they simply retrieve and install their stored van.

Figure 12 illustrates an embodiment, which includes computer-based devices comprising multiple formats, e.g., PC **1200**, PDA **1202**, telephone **1203**, and laptop **1204** using the present invention. In this embodiment, a user who has multiple devices may want to duplicate the "look and feel" across each device. A van is created and stored in the Binary Data Server **1104** for the source device (say PC **1200**). Within the system servers, a conversion of the XML directive file into a destination device appropriate format, using tools such as Cocoon (part of Apache's Open Source), is implemented.

Figure 13 illustrates an implementation of software version management during the upload/download process (previously discussed above). During the initial scanning **1302** of computer **100**, a software version is detected **1304**. Using software vendor supplied information

**1316**, a correlation is performed **1306** to determine if newer versions are available. If so, software upgrades are offered for each detected program **1308**. If the user decides against upgrades the process ends **1318**, else, they accept one or more upgrades **1310**. The upgrades are either downloaded electronically or through more conventional means (i.e., mail). Payment is arranged **1314** and the process is terminated.

### WORKING EXAMPLE

A series of screen shots are presented in figures 14-28; these screen shots represent a working example as performed on the website entitled “pcmovingvan”. Figures 14-23 represent the upload/load portion of the present invention; figures 24-28, the download/unload.

Figure 14 illustrates a basic login screen requesting an account holder’s e-mail address and password.

Figure 15 illustrates an option screen to load a new van, unload an existing van, delete or rename existing vans as well as an undo selection to undo a previous van load.

Figure 16 illustrates an information screen requesting a “name” for the van you are about to create.

Figure 17 illustrates an information screen indicating that a plug-in (CAD) will be downloaded to your machine.

Figure 18 illustrates an information screen suggesting a security plug-in to secure the data transferred during an existing session.

Figure 19 illustrates a GUI “packing list” for interactive user selection of possible settings and files to be transferred in the user’s van.

Figures 20 and 21 illustrate possible selections for obtaining files to be transferred (if any).

Figure 22 illustrates an information screen (including status) with a game to pass the time while waiting for the actual van upload. In an alternative embodiment, this section contains directed advertising based on an analysis of the requesting computer.

Figure 23 illustrates an information screen indicating completion of the upload sequence.

To now transfer the van to another computer-based device, the user sequences through an unload (after first logging on, as per figure 14).

Figure 24 illustrates an option screen to load a new van, unload an existing van, delete or rename existing vans as well as an undo selection to undo a previous van load (we see the van "van1" created in the upload).

Figure 25 illustrates an information screen indicating that a plug-in (CAD) will be downloaded to your new device.

Figure 26 illustrates a "packing list" of settings and files contained in van1.

Figure 27 illustrates an information screen (including status) with a game to pass the time while waiting for the actual van unload. In an alternative embodiment, this section contains directed advertising based on an analysis of the requesting computer.

Figure 28 illustrates a completed van unload and a recommendation to restart the user's PC (not shown – same as figure23).

It is to be appreciated that essentially all of the components of the web site of the server system will be comprised of multiple software applications, multiple hardware components and potentially multiple hosting locations as is conventionally done in the industry for web site operation.

It is to be appreciated that the specific time during execution of either the upload or the

download routines, that any advertisement(s) and/or offer(s) are presented to the user of the first or second computer-based device can vary from application to application, e.g. the advertisement(s) and/or offer(s) can be presented to the user after the scan of the first or second computer-based device, for example. In addition, a plurality of different advertisement(s) and/or offer(s) can be presented to the user of the first and second computer-based devices during operation of the present invention.

The term "information" as used in the appended claims, is intended to cover the desired applications software settings, file(s) and the data, etc., which are to be conveyed from the first computer-based device to the web site and then from the web site to the second computer-based device.

Since certain changes may be made in the above described method and system for transferring computer-based device software applications, settings and other data from one computer-based device to another computer-based device via a server system of a web site, without departing from the spirit and scope of the invention herein involved, it is intended that all of the subject matter of the above description or shown in the accompanying drawings shall be interpreted merely as examples illustrating the inventive concept herein and shall not be construed as limiting the invention.

The above described invention and its described functional elements are implemented in various computing environments. For example, the present invention may be implemented on a conventional IBM PC or equivalent, multi-nodal system (e.g. LAN) or networking system (e.g. Internet, WWW, wireless web). All programming, GUIs, display panels and dialog box templates, and data related thereto are stored in computer-based device memory, static or dynamic, and may be retrieved by the user in any of: conventional computer-based device

storage, display (i.e. CRT) and/or hardcopy (i.e. printed) formats. The programming of the present invention may be implemented by one of skill in the art of graphics or object-oriented programming.

The main toolsets used for development and construction of a production present invention system are, but not limited to (functionally equivalent programs can be interchanged or added without departing from the scope of the present invention as the exact hardware needs will vary as load testing indicates the capacity of each module. Another consideration is forecasting of the customer base growth rate.):

- Visual Basic® 6.0 SP3 for creating the administrative and management tools
- Visual C++® 6.0 SP3 for creating the CAD
- Visual InterDev® 6.0 SP3 for creating the ASP files used by the Web Application Servers
- Visual SourceSafe ® 6.0 SP3 for source and version control
- Crystal Reports® 7 MR1 for creating reports

## CONCLUSION

A system and method has been shown in the above embodiments for the effective implementation of a system for transporting application settings, files and other data from one computer-based device to another computer-based device. While various preferred embodiments have been shown and described, it will be understood that there is no intent to limit the invention by such disclosure, but rather, it is intended to cover all modifications and alternate constructions falling within the spirit and scope of the invention, as defined in the appended claims. For example, the present invention should not be limited by software/program (e.g., ActiveX ATL control) , computing environment, specific computing hardware or GUI templates.

0270905-11800